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NOTES ABOUT THE AUTHORS

WAYNE A. LEEMAN

Wayne Leeman is Professor of Economics at the University of Missouri. For several years he has been studying the price of Middle East oil. He is continuously in contact with the international oil companies and during the school year 1957-58 he travelled to London and the oil countries of the Middle East. He has previously published articles in the *Journal of Political Economy, Journal of Industrial Economics, Southern Economic Journal, Industrial and Labor Relations Review,* and the *Journal of Philosophy.*

STEFAN H. ROBOCK

Prior to assuming his post with the Committee for Economic Development in 1958. Dr. Robock was Director of Economic Research for the Midwest Research Institute in Kansas City, Missouri.

Born in Wisconsin, Dr. Robock was graduated from the University of Wisconsin in 1938. He received his M.A. and Ph.D. degrees in Economics from Harvard University.

Dr. Robock was Chief Economist of the Tennessee Valley Authority from 1949 to 1954. Under the United Nations Technical Assistance program, he served for two years (1954-1956) as Economic Development Adviser to Brazil, and in India (1959) as Adviser on Regional Development Programming. Prior to his TVA experience, Dr. Robock worked as economist for a number of government agencies, including the Antitrust Division of the U. S. Department of Justice and the National Resources Planning Board.

He is author of *Why Industry Moves South, Nuclear Power and Economic Development in Brazil,* and a number of books and professional articles in the field of economic development.

MELVILLE PETERSON

Melville Peterson is Assistant Professor of Business Finance at the University of Missouri. He has taught courses in finance and was Assistant Professor of Economics at Culver-Stockton College from 1947 to 1953.

The article by Professor Peterson is based upon materials developed while doing the research for his doctoral dissertation at the University of Illinois.

HALE A. NEWCOMER

Hale Newcomer received his B.S. in Marketing from the University of Illinois in 1951, his M.B.A. in Finance from the University of Texas in 1953, and his Ph.D. in Business from the University of Illinois in 1957.

During 1954-56, he was associated with the Bureau of Institutional Research and then with the Department of Marketing, University of Illinois. From 1956 to 1958 he was on the staff at the University of Washington. At present he is Assistant Professor of Marketing at the University of Missouri.

Dr. Newcomer's interest in foreign trade began when he attended the Universidad Nacional de Mexico, Mexico, D.F., in 1949.

Recent Developments in International Oil

WAYNE A. LEEMAN
Professor of Economics
School of Business and Public Administration
University of Missouri

The years 1958 and 1959 were years of transition in world oil. In order to see in perspective the changes which occurred during this period, we will review briefly the situation before 1958.

INTERNATIONAL OIL BEFORE 1958

The world market for petroleum has been a market of controlled supply and administered prices. Supply has been controlled in the United States by state conservation commissions and outside the United States mostly by the large international oil companies, the "international majors." State administrative bodies in the three important states of Texas, Louisiana, and Oklahoma have been most effective in limiting supply and defending crude oil prices. Now no one who understands the problem of petroleum conservation denies the necessity of state control of production when numerous landowners all have rights to subsurface oil and are likely, in the absence of control, to engage in a scramble for the available supply. But sophisticated students of oil, both in and out of the industry, have long recognized that the state conservation commission set output far below what is necessary for conservation and in fact that they limit output in order to protect the prices and profits of the numerous, politically powerful small oil producers.

Outside the United States output is controlled by the eight international majors: Five of these world-wide, fully integrated oil companies are American—Standard Oil Company (New Jersey), Socony Mobil Oil Company, Texaco, Inc., Standard Oil Company of California, Gulf Oil Corporation—one is British—the British Petroleum Company — one British-Dutch — the Royal Dutch-Shell group—and one French—Compagnie Francaise des Petroles. Together, these companies control, outside the United States, 96 or 97 per cent of non-Communist production and about 90 per cent of non-Communist refining and marketing. Clearly the international majors constitute what economists call "oligopoly," a market of a few sellers in which stability is greatly valued while prices tend to be rigid and higher than they would be in a more competitive situation.

Prior to 1958, then, the state conservation commissions in the United States and the international majors outside the U. S. in a kind of tacit partnership controlled quite effectively world markets for oil. The only threat to the stability of the system arose from increasing U. S. imports of low-cost foreign oil; these forced the state commissions to cut back production in the United States more and more in order to protect U. S. prices, prices which reflected the high cost of U. S. production. A voluntary import restraint program sponsored by the government of the United States was not very effective in checking the growth of U. S. imports.

STABILITY THREATENED

In 1958 and 1959 a number of developments threatened more seriously the structure of world oil prices.

(1) Following a U. S. recession, the rate of growth of world demand for oil products was checked; as demand grew more slowly, absorption of the large new supplies which appeared on the market during this period became more difficult.

2) A large number of independent, non-affiliated firms entered Venezuela and began to find oil in 1958. Having paid large sums for their concessions, they were eager to produce the oil and market it so as to recover their investment. (Several new independents also entered the Middle East but at the time of writing only one had found oil.)

(3) Partly to protect themselves against interruptions of supply in any particular concession, partly because many investment programs are indivisible ("We cannot build a deepwater pier one pile at a time."), the international oil companies by 1959 had developed large excess capacity in each of their major concessions.

(4) The Soviet Union reappeared on the scene as a substantial exporter. (It had not been in the world market after the Thirties.)

(5) Large discoveries of oil were made in the Sahara. In Algeria, or what the French call the "French Sahara," large deposits of oil have been found but the variable (and in some places low) permeability of the formation leave the magnitude of ultimate recovery uncertain. Moreover, the 400-mile pipeline to the coast, opened officially in December, runs through the Atlas Mountains in which the Algerian rebels are strong and it may be blown up periodically. Libyan discoveries are more recent and less immediately a threat to the world price structure, but they are nearer the coast (about 100 miles inland), in a politically stable area, and very low cost. After Jersey Standard drilled two wells yielding 17,500 and 15,000 barrels per day respectively, people began to speak of "the new Kuwait," Kuwait being the lowest cost and most incredibly rich oil region in the world. Part of the Libyan oil has been found by independents.

6) Finally, compulsory import quotas were established in the United States during the Spring of 1959. They turned out to be only partially a solution to the problems of U. S. oil men, who found that the competition of domestic natural gas was causing them as much difficulty as had the import of low-cost foreign oil. The import quotas compounded the problems of foreign oil men by forcing them to seek markets abroad for oil which they had hoped to bring into the United States. The independents who had found oil in Venezuela were particularly hurt by the quotas because they lacked marketing facilities outside the United States.

As a consequence of the developments of 1958 and 1959 world oil prices came under pressure. Discounts off posted prices were ubiquitous and oil men thought that the future looked ominous. Today some feel that the entire price structure outside the United States is threatened.

THE LIKELY FUTURE

In the opinion of the writer, however, recent developments do not so seriously threaten world oil prices as people in the industry seem to believe. In the first place, part of the oil surplus will disappear as growth in world demand resumes. Secondly, the international majors, who have a large interest in stability, will buy up some of the independents' oil ("distress oil") rather than see it undermine prices; indeed, probably they will buy up some of the independents themselves, when these become disruptive factors in the market place. Then the Soviet Union, once it wins a certain share in the market, may become interested in stability and high prices and market its oil in an orderly manner. In the late Twenties and early Thirties, Russia pushed its way into world markets by cutting prices, but in due course it came to terms with the oil cartel which then existed and in a number of countries marketed its products with restraint. (It is of interest to note that recently the Soviet Union decided to market its export demands through the Central Selling Organization of the De Beers group rather than market them independently and upset the monopoly which this body possesses.)

A major company cartel in oil today is unthinkable. The climate of opinion, at least in the United States, is quite different from what it was in the Twenties and early Thirties, when "orderly" competition was thought to be most desirable. But a "cartel" of producing countries, controlling production or establishing export quotas, in the interest of maintaining prices, is a possibility. Because the governments of producing countries receive about half of the oil profits, they have a strong interest in defending prices, and in recent months the governments of Venezuela, Iran, and several Arab countries have explored the possibilities of controlling supply by agreement. Obviously there are difficulties. The countries would find it difficult to agree on quotas. And countries with more to gain by staying out of an agreement than enter-

CRUDE OIL PRODUCTION
(millions of barrels)

Year	World Total	United States	Venez-uela	Middle East	Texas	Louis-iana	Okla-homa	Kuwait	Saudi Arabia	Iraq	Iran
1937	2,039.2	1,279.2	186.2	117.5	510.3	90.9	228.8	.....	(65 thous.)	31.8	77.8
1945	2,594.7	1,713.7	323.2	194.3	754.7	131.1	139.3	.....	21.3	35.1	130.5
1946	2,745.4	1,733.9	388.5	256.5	760.2	143.7	134.8	5.9	59.9	35.7	146.8
1947	3,022.1	1,857.0	434.9	306.3	820.2	160.1	141.0	16.2	89.9	35.8	155.0
1948	3,433.2	2,020.2	490.0	416.8	903.5	181.5	154.5	46.5	142.9	26.1	190.4
1949	3,404.1	1,841.9	482.3	511.5	744.8	190.8	151.7	90.0	174.0	31.0	204.7
1950	3,803.0	1,973.6	546.8	640.9	829.9	209.0	164.6	125.7	199.5	49.7	242.5
1951	4,282.7	2,247.7	622.2	700.6	1,010.3	232.3	186.9	204.9	278.0	65.1	123.5
1952	4,504.7	2,289.8	660.3	760.6	1,022.1	243.9	190.4	273.4	301.9	141.1	7.8
1953	4,787.0	2,357.1	644.2	884.7	1,019.2	256.6	202.6	314.6	308.3	210.3	9.4
1954	5,006.7	2,315.0	691.8	998.9	974.3	246.6	185.9	347.3	347.8	228.4	21.5
1955	5,642.4	2,484.4	787.4	1,185.0	1,053.3	271.0	202.8	398.5	352.2	251.2	120.0
1956	6,101.8	2,617.3	899.2	1,262.9	1,110.2	298.9	215.0	399.9	360.9	233.4	198.3
1957	6,528.8	2,616.9	1,014.4	1,293.5	1,073.9	329.9	214.7	416.0	362.1	163.5	263.2
1958	6,567.8	2,448.8	951.1	1,558.5	940.2	313.9	200.7	509.4	370.5	266.1	301.5

Sources: All data except Texas, Louisiana, and Oklahoma, **World Oil**, August 15, 1958, pp. 129-30; **World Oil**, August 15, 1959, p. 102. Data on Texas, Louisiana, and Oklahoma, **World Oil**, February 15, 1957, pp. 181-82 and U. S. Bureau of Mines.

ing it, Libya perhaps, may remain out and undercut prices. However, critics of governmental output control may exaggerate the problems associated with it.

The largest producing countries, with the most to lose from declining prices, may take upon themselves the greatest burden of cutting back output, just as in the United States. Texas does more than Louisiana and Oklahoma to check output and maintain prices. The large producing countries may accept the necessity of making room for Sahara oil and oil from the Soviet Union. Moreover, once price cuts actually occur, or seriously threaten, the governments will be strongly motivated to come to agreement on a program of controlling output. The independent producers of southwestern United States grumble about low allowable production, but it takes only a small price decline to have them clamoring for still tighter allowables.

There are those who speak of the immorality of the efforts of governments in the producing countries to limit supply. These governments, of course, can cite the example set by state conservation commissions in the United States. There is something disingenuous in the way oil men point the finger of scorn at foreign governments which contemplate control of production when they have consistently remained silent about the activities in price stabilization of producing areas within the United States.

The writer has his doubts about all of these activities, domestic and foreign. Not the least of the dangers is that governments of consuming countries may react to output control in producing countries by the introduction of state trading or the control of imports. The likelihood of a seriously competitive market in world oil appears to be small. The interest in stability of oil companies and producing-country governments is very great and the inclination of all governments to intervene in oil markets is growing. Currently a surplus of oil and new sources of supply appear to threaten the world price structure. However, the real problem, the long-run problem, is to maintain, or to increase, the flexibility of international oil markets. Contrary to the views of some oil men, the real problem is not too much competition, but too little.

Is Industrial Promotion "Wasted Effort"?

STEFAN H. ROBOCK
Deputy Director, Area Development Division
Committee for Economic Development
New York City

Industrial promotion has become "big business." Thousands of cities, states, regions and nations are giving industrial promotion programs high priority as the key to economic growth. Many public and private development groups consider new industries essential as a source of employment for new people coming into the labor force, for workers shifting out of agriculture and for laborers displaced by automation and other technological developments.

Distressed economic conditions account for many industrial promotion efforts but most programs are inspired by a general desire for continued economic expansion. In a number of areas declining employment opportunities in traditional industries have given special stimulus to industrial promotion. More important than such crisis situations, however, is the widespread conviction that economic growth is synonymous with good economic health.

A forthcoming report sponsored by the Committee for Economic Development estimates that some 14,000 economic development programs were in existence in the United States in 1957-58.[1] Almost 70 percent of the organizations responding to the CED survey have been established since 1950. In total, the economic development groups spent at least $220 million for economic development efforts in 1957. Industrial promotion is a principal activity of these organizations and a major program expenditure.

With such tremendous funds now going into industrial promotion, it is important to ask, "Is industrial promotion wasted effort?" or to be more precise, "How much industrial promotion activity is wasted effort?"

The ultimate test for a particular area, of course, is whether industrial promotion results in new local industries or stimulates the expansion of existing plants. But many an agency will take credit for all industrial

The views expressed are the author's and not necessarily those of the CED with which he is associated.

[1] **Developing the "Little Economies,"** by Donald R. Gilmore. A Supplementary Paper of the Area Development Committee of the Committee for Economic Development, New York, N. Y. (Forthcoming)

expansion that occurs in its area, whether or not the organization truly deserves any credit for the successes. And frequently it is impossible to isolate any one program as the factor responsible for attracting a new industry.

The activities of specific industrial development organizations, obviously, cannot be evaluated in this short article. But it is possible to indicate the standards against which the effectiveness of industrial promotion activities can be measured.

BACKGROUND

Industrial Promotion— A Marketing Problem

In essence, industrial promotion is a marketing activity of unusual breadth and complexity. The product being offered is a particular area for a plant location. The customers are the business (or government) officials who need a site for a new plant, for an expansion of an existing industry, or for a relocation of an established business.

Each product being offered is unique and every customer's requirements are different. In its simplest form, the challenge for an industrial promotion organization is to find the right customers for the specific product being offered.

Several unusual features characterize this deceptively simple problem in marketing. The seller can modify his product through local development programs so as better to meet the needs of potential customers. Also, the buyer's requirements may have some degree of flexibility. The plant location decision of the buyer generally involves a commitment of a large long-term investment. Consequently, the buyer may take a long period of time to make his "purchase" and he will try to use scientific and objective techniques in the process of reaching his decision.

Successful industrial promotion, therefore, demands a good product, imaginative market research to identify the potential prospect and his needs, and effective techniques for contacting and influencing the decision of prospective customers. The personnel undertaking this work should, of course, be thoroughly familiar with the economics of location and the business factors involved in plant location decisions.

National Growth: A Pre-condition for Success

Rapid economic expansion for the nation as a whole means many new prospects for all areas. A slow national growth rate or recession means relatively few new industry possibilities, even though regional differences will permit some areas to expand while other areas will need programs to counteract economic decline.

Local or regional industrial development groups often overlook their dependence upon national prosperity and base their efforts completely on an assumed rivalry with other regions or other nearby cities. But the common interest shared by all industrial development groups in the continued rapid growth of our national economy far overshadows the much smaller problem of inter-regional or local competition.

Any individual industrial development agency may feel that the national economic growth problem is too big for it to handle. But in view of the crucial influence of national trends on the possibilities of success for local programs and on the opportunities for effective rather than wasteful uses of development funds, every industrial promotion agency should seek out ways to influence the overall environment within which it must operate.

The Industry "Mix" of Growth Industries

The opportunity for industrial promotion success also depends upon the industry "mix" of the expanding industries. The locational requirements of different industries vary greatly depending upon plant

technology, location of the markets, the importance of labor costs in the manufacturing process, etc. Unless industries are expanding whose locational requirements can be met in a particular area, that area has poor prospects for industrial promotion success. To illustrate with an extreme case, if the principal industrial expansion activity is in the field of aluminum reduction, only those areas with adequate supplies of low cost power can expect to attract new industry.

Of course, industrial expansion is never limited to one locational type and the dominant types of growth industries constantly change. During past periods when the textile industry was expanding, the areas with advantages in labor supply and labor costs had great success in industrial promotion. When the paper and pulp industry is enlarging its capacity, the areas with the proper forest resources have excellent prospects.

It should also be noted, however, that many areas have local industry possibilities based on expanded income and employment from non-manufacturing activities such as agriculture, mining and trade. Such industries oriented to local markets include many food processing activities—soft drink bottling plants and bakeries, printing and publishing and the manufacture of bricks and cement products. Metropolitan areas, of course, have a greater potential than small cities for these local industries because of technological trends toward larger plant sizes. It was common in the past for every small town to have a local bakery but the present pattern is for fewer but larger bakeries located at central cities to serve a large region.

Business Factors in Plant Location

Another general matter for industrial promotion groups is the need to understand thoroughly the business factors involved in plant location. Some defense facilities are located by direct government action and may be influenced by pressures exerted in the political arena. But the normal situation in our private enterprise system is that the business man makes the final decision on plant location based on long-term profit criteria. To influence this decision industrial promotion groups must understand it.

As a general rule, the plant location decision of a businessman is made in two steps.[2] First, he selects a general area. Next, he looks for a specific community and site within the general area. Neither time nor resources will permit the businessman to survey all theoretically possible locations. Therefore, he limits his search by concentrating on the general area which best satisfies the major location advantage for his type of plant. This major advantage generally comes from being close to the market, to a source of materials or to a supply of labor. The production process, transfer costs and the economics of a specific industry determine which of the major location factors—markets, materials or labor—is of predominant importance.

The major location factors are the main issues in choosing among regions. A large number of secondary factors are involved in the competition between cities within a general area. Included in such secondary factors are taxes, community services, availability of buildings and sites, the general attractiveness of a city, and attitudes of community leaders toward new industry.

The location characteristics of a particular type of industry, however are not static. The changing technology of production and

[2] For a more complete discussion of business practices in plant location, see **Why Industry Moves South**, by Glenn E. McLaughlin and Stefan Robock, National Planning Association, Washington, D. C., 1949 and George H. Ellis, "Why New Manufacturing Establishments Located in New England," **Monthly Review**, Federal Reserve Bank of Boston, April, 1949. Both studies are based upon interviews with a large number of business executives who located new plants in the postwar period.

distribution can alter radically the economics of location for a plant. External plant factors such as the increased use of trucks, pipelines, airways and water freight can have important influences.[3] Likewise, developments in production techniques such as the process for concentrated orange juice, frozen food technology or the manufacture of paper from hard woods can be responsible for changing locational patterns.

INDUSTRIAL PROMOTION

The Need for Critical Self-Analysis

With this background, we can now turn to specific industrial promotion activities. Frequently, a development organization assigns its entire budget and staff to selling activities, and neglects the supporting programs of product improvement and market research.

A first step for any group is to make an inventory and critical analysis of the product it is offering to industry. Industrial promotion involves selling an intangible product. Therefore, the locational advantages of an area must be described by statistics, surveys and objective technical-analyses. Furthermore, it is good business to know the weaknesses as well as the strengths of your product.

The critical self-analysis step is a difficult one for many development groups to take. But this can be the stimulus and the guide for improving the weak features of the product being offered.

A midwestern city that was having difficulty in attracting industry recently contracted with a prominent research organization for an industrial development survey. The study revealed many deficiencies in community facilities such as housing and industrial sites. It also indicated that some important community leaders were not anxious to attract new industries.

When the sponsors of the survey received the completed study, they were angry and disappointed. "How can we show such a report to a new industry prospect?" complained the community leaders. Even after much discussion, the sponsors were reluctant to recognize that a prospect will be certain to discover these weaknesses himself, and that if the community does not take steps to improve the situation, no amount of advertising or elaborate brochures can improve the basic quality of the product.

Market Research for Industrial Promotion

Imaginative market research is another requirement for effective rather than wasteful industrial promotion. This step requires continuing research on future patterns of industrial expansion. In addition, technological trends should be studied to foresee new types of products and new industries that are not covered by current statistics. Frequently, local groups can secure assistance from state and Federal agencies for this type of market research, or from private research organizations with specialized staff and a background of experience in the field.

The expansion possibilities for industries already located in an area and for nonmanufacturing businesses should not be overlooked in the market research. In many respects, established industries in an area may provide the best opportunity for industrial promotion activities. Also, the rapidly expanding recreation, trade and service industries may offer excellent possibilities for increased local employment and income.

All industrial promotion programs operate with limited resources. Research that will identify prospects who are likely to be

[3] See "Papermaking at Antioch," Pulp and Paper, May 1957. "The new system which Crown Zellerbach has devised to supply a great paper center at Antioch, California with raw material is the basis for a new philosophy of manufacturing and marketing in this industry." P. 1.

in the market for a plant location and whose locational requirements can be satisfied within the area can avoid a great deal of waste in industrial promotion efforts.

Selling Techniques

The ultimate step in industrial promotion is contacting and selling the prospect. Promotional techniques cover a wide range of activities. Many groups rely heavily on advertising—both institutional and specific. Some may emphasize personal calls on potential prospects. Others may rely to a great extent on special inducements, financial assistance, or even subsidies.

There is much uncertainty about the effectiveness of advertising. Obviously, advertising will benefit an area that has excellent and well documented locational advantages and that has defined its best market. In particular, the offer of data and surveys can be important in calling the attention of concerns to certain local possibilities. But general advertising that claims the best of everything in vague terms is likely to be wasted effort.

Special inducements have been used with varying degrees of success. Most business firms will not accept a special subsidy that will obligate the company to the community. Tax exemptions available by law to all industries in certain defined categories are normally accepted. But a study of the experience under Louisiana's ten-year tax exemption program for new and expanding industries concludes that the tax exemption had a determining influence in only a very few cases upon the decision of management to locate a new enterprise in Louisiana, and that from the standpoint of the state, "the cost in terms of lost revenue . . . is great in proportion to results."[4]

Programs of financial assistance have been attractive to some firms, particularly small companies. On this point the programs of Mississippi and Pennsylvania bear testimony.

In general, however, the location decisions of businessmen have been made without any influence by special inducements. In those cases where special inducements have played a role, the location decision is generally based on sound economic advantages in addition to the special inducements. On this subject one business official made his suspicion clear when he observed, "They usually offer inducements where the location doesn't have much to offer."

In Summary

Let us now return to the original question, "Is industrial promotion wasted effort?" The question should be answered from the stand-point of both national and local interests.

From the national point of view, industrial promotion activities can be wasted effort even when they bring results to local and regional groups. The waste occurs when total industrial expansion is not increased by such efforts but instead is differently and less efficiently located. This is particularly true when temporary local subsidies attract an industry to an uneconomic location and the industry later fails.

Industrial promotion efforts can make a positive national contribution under the following circumstances:

1. When local groups are stimulated through an industrial promotion program to improve community facilities and contribute toward greater efficiency of local economic activity and better living conditions.
2. When local groups develop better information than is previously available and contribute to more efficient location decisions based on better knowledge.
3. When local groups stimulate a net increase in economic expansion by identifying new business opportunities and by

[4] Wm. D. Ross, **Louisiana's Industrial Tax Exemption Program,** Division of Research, College of Commerce, Louisiana State University, Baton Rouge, La., 1953, p. 47.

assisting prospective or existing industries in overcoming barriers to expansion such as by financial assistance on a non-subsidy basis.

From the local viewpoint, industrial promotion will not be wasted effort under the following conditions:

1. If the national economy is experiencing significant economic growth.
2. If the program is supported by objective factual surveys and a critical evaluation of the area's shortcomings.
3. If the area engaged in industrial promotion is undertaking the necessary internal development programs to eliminate its weaknesses and improve its advantages.
4. If the industrial promotion groups undertake the necessary market research to guide their efforts and do not adopt an indiscriminate shotgun approach in seeking new industry prospects.
5. If the promotion program is not based upon vague advertising campaigns proclaiming the existence of all locational virtues in the area.
6. If the program is a sustained and balanced effort rather than a short-term affair.

Accepting these standards, an informed observer must necessarily reach the conclusion that a large share of the industrial promotion activity now under way *is* wasted effort. But he would add, it need not be so.

The Changing Pattern of Industrial Bond Types

MELVILLE PETERSON
Assistant Professor of Business Finance
School of Business and Public Administration
University of Missouri

NATURE OF THE CHANGE

In the years following World War II at least one major change has occurred in the nature of debt instruments used by American corporations. Many firms have issued debenture bonds (unsecured by specific collateral) instead of following an older custom of issuing secured bonds (secured by the pledge of specific property or securities), but of even more significance is the fact that the greatest increase in the utilization of debenture bonds has been among industrial companies rather than among public utilities and railroads. Thus, in the industrial field,[1] debenture bonds have become of primary importance as a major form of long-term indebtedness.

The extent of this shift to debentures by industrial concerns is indicated in Table 1 which shows that in 1937 more industrial companies had only mortgage bonds outstanding (as well as a larger number of issues) than only debenture bonds, although the par values of these two bond types were nearly equal. In addition, 66 industrial companies had 100 mortgage bond issues plus 83 issues of different types. By 1946, however, the use of debenture bonds by industrial companies had increased greatly and entirely at the expense of mortgage bonds. Furthermore, the greater use of debenture bonds was maintained through 1954 as is indicated by the figures in Table 1.

In a way, this increased importance of debenture bonds to industrial firms presents something of a paradox. As a rule, public utilities and railroads are seldom, if ever, permitted to liquidate whenever bankruptcy occurs; rather they usually go through a reorganization. On the other hand, many industrial corporations have been liquidated whenever bankruptcy has occurred and sometimes even when it appeared that the business was heading for a critical condition. (This is not to infer, however, that reorganizations never take place among industrial corporations.) Thus, the mortgage feature of public utility and railroad bonds does not offer the protection to their bond-

[1] Industrial companies are those classified as manufacturing, extractive, merchandising (both wholesale and retail), service and amusement, and all others not classified as public utilities, railroads, or financial companies.

holders as provided in mortgage; that is, the bondholders are not permitted to seize the encumbered property if the company defaults on its interest or maturity payments. Since industrial companies are more likely to be liquidated, it would seem more logical for them to issue mortgage bonds as the sole form of evidencing their funded indebtedness whenever the company possesses enough property to do so rather than for the public utilities and the railroads to issue this form of bond. Yet just the opposite has been true in recent years.

In the final analysis, of course, if any company is liquidated, the creditors look to the company's property for the satisfaction of their claims against the company. If the company had issued a mortgage bond, the mortgage bondholders would have first claim to the money realized from the sale of the assets that had been pledged as security for the bond issue. If insufficient cash was realized from this source (as is usually the case with forced liquidations), the unpaid balance becomes a general claim, along with the other general creditors' claims, against any other assets which the company possessed. Conversely, if the company had an ordinary debenture bond outstanding at the time of liquidation, the debenture bondholders would have only the status of general creditors from the outset.

Thus, regardless of the bond type used, the assets do represent some degree of protection for the bondholders in case of liquidation, and by relating a company's stock equity to its total bonded debt, a ratio can be computed that would indicate roughly the asset protection behind a company's bonds.

PROTECTION OF MORTGAGE AND DEBENTURE BONDS

In order to show what effect the shift from mortgage to debenture bonds has had on the degree of protection provided by in-

TABLE 1

THE NUMBER OF INDUSTRIAL COMPANIES, BY TYPES OF BONDS USED, AND THE NUMBER AND THE PAR VALUE OF EACH BOND TYPE OUTSTANDING IN 1937, 1946, 1950, AND 1954

	1937	1946	1950	1954
Companies With Only Mortgage Bonds Outstanding				
Number of Companies	514	140	125	92
Number of Issues Outstanding	617	157	140	112
Par Value (Million Dollars)	$1,465	$752	$927	$1,013
Companies With Only Debenture Bonds Outstanding				
Number of Companies	195	206	234	285
Number of Issues Outstanding	225	237	302	366
Par Value (Million Dollars)	$1,502	$2,369	$3,386	$6,181
Companies With Both Mortgage Bonds and Other Bond Types Outstanding				
Number of Companies	66	19	15	18
Number of Issues (all types)	183	42	38	45
Number of Mortgage Issues Only	100	21	19	24
Par Value (all types) (Million Dollars)	$715	$167	$297	$567
Par Value (Mortgage Issues Only) (Million Dollars)	$378	$ 81	$ 83	$248

Source: Compiled from data contained in John Moody, **Investment Manual—Industrials** (New York: Moody's Investors Service, 1936-1940, 1945-1955).

dustrial companies with only mortgage bonds outstanding and with only debenture bonds outstanding, a random sample of fifty companies—twenty-five from those companies with only mortgage bonds and twenty-five from those with only debenture bonds—was taken for each of four selected years for each of the companies selected, and for each of these a stock equity to bonded debt ratio was calculated, and averages were than computed for the companies with only mortgage bonds and for companies with only debenture bonds. The samples for each of these years were drawn from the companies with these two forms of bonds outstanding shown in Table 1 and include, as nearly as possible, all of the industrial companies with either of these two bond forms outstanding in each of the four years.

STOCK EQUITY TO BONDED DEBT RATIO

Before presenting these ratios, however, the nature of the ratio and the figures used in its computation should be discussed so that no misunderstanding will arise as to the significance of these figures.

In general, two broad groups of investors may provide the funds necessary for the formation and the operation of a corporation. First, the owners, through the purchase of the corporation's stock and the retention of a part of the earnings by the corporation, supply both the necessary initial funds and a part of the additional funds required through the years of its operations. Second, creditors also may provide some part of these funds. (This latter group may be sub-divided into two groups: short-term creditors and long-term creditors.)

Short-term credit, in the form of trade credit, bank loans, and other debts of a similar nature, is used to finance some of the company's current assets. Conversely, long-term credit, most often in the form of bond issues, is employed to finance some of the company's fixed assets, although in actual practice a part of the funds acquired in this manner also may be invested in current assets. Thus, the sum of a company's liabilities plus the ownership equity equals the sum of the company's assets.

In a well-financed industrial corporation the creditors will not have financed all of either the current assets or the fixed assets, for the owners will have supplied a substantial part of each. Although the total ownership equity might be less than the sum of the creditors' equity, the amount of the total proprietary equity can be considered a measure of protection to the creditors because, in liquidation, the owners would receive none of their investment until all the creditors had received all of theirs. If business concerns never failed, this protection would be unnecessary and a company might be financed entirely from borrowed funds. Since there is no guarantee that a company will not fail, such protection is necessary so that the company can attract funds from such sources when and if needed.

Basically, both the stockholders and the bondholders provide much the same type of investment in a business; that is, both supply funds of a long-term nature and funds for general corporate purposes. By comparing the total proprietary equity with the bondholders' claim against the corporate assets, the degree of protection afforded to the bondholders by the stockholders can be shown. This protection is necessary, of course, only if the assets must be liquidated so that funds may be acquired to retire the indebtedness. As was mentioned earlier, assets lose much of their value under conditions of liquidation, and so the larger the margin of safety given by the stockholders, the better the protection.

For an even better understanding of these ratios, a detailed analysis of what is included in both the stock equity and bonded

debt figures is presented below. In the computation of each company's stock equity (or tangible net worth), intangible assets, such as goodwill, patents, copyrights, leaseholds, organization expenses, development expenses, and others of a similar nature which appeared on the balance sheets, were deducted from the stockholders' investment in the corporation. Such items usually are more in the nature of expenses or represent the expenditure of funds for something that is not an earning asset. The company, however, does not claim the total amount of these items in the year or years in which the expenditures are made but usually claims some part of them each year until completely recovered. In any case, these "assets" would have no value in an involuntary liquidation of the assets, and, if these items appeared on the company's balance sheet, they were deducted from the owners' equity in the business. Conversely, the amounts invested in any preferred stock, classified common stock, paid-in surplus, earned surplus, reserves for contingencies, reserves for sinking funds, were included as a part of the company's net worth along with the amounts invested by the common stockholders. The resulting figure is referred to as tangible net worth (or total proprietary equity).

One point should be emphasized about the bonded debt amounts used in the construction of these ratios. Because of the nature of the study (only long-term bonded debt being examined), all of a company's long-term debt was not necessarily included in this amount. Some companies had long-term bank loans outstanding (maturity of over one year) that were excluded from the bond amount; others had single, long-term notes outstanding that also were omitted from the bond amount. Thus, the bonded debt figure used in the computation of the ratios did not necessarily represent all of a company's long-term debt.

In order to show a more complete figure for the bonded debt outstanding, any amounts of bonded debt due in the following year and shown with the current liabilities on a company's year-end balance sheet were included with the amount of bonded debt outstanding for that balance sheet date. Although these amounts are usually small in relation to the total amount of bonds outstanding, such treatment does increase the bonded debt figure from that presented on the balance sheet, thus indicating the total par value of bonds outstanding at that time. On the other hand, sinking funds that were invested in the bond issues for which they were created were deducted from the dollar amounts of the bonds outstanding if this deduction had not already been made on the balance sheet.

THE RATIOS

The average stock equity to bonded debt ratios are presented in Table 2. These ratios indicate that, with the exception of 1946, the companies with only debenture bonds showed a better average coverage of the bondholders' investment than did the companies with only mortgage bonds outstanding. In essence, these ratios indicate that the stockholders of the companies with debenture bonds, on the average, provided more protection for their bondholders than had the stock-holders of the companies that had only mortgage bonds outstanding. Simply stated, this means that the companies which had only debenture bonds outstanding did not indebt themselves proportionately as much, in relationship to the stockholders' investment in these companies, as did the companies that had only mortgage bonds outstanding.

Although this ratio is an indication of the protection the bondholders may expect in case of liquidation, complete protection is not necessarily obtained. In the first place, the company may have other forms of indebtedness in relatively large amounts

in the form of short-term trade credit, short-term bank loans, and intermediate-term loans from various sources not included with the bonded debt figure used in these ratios. The sum of these items, plus the bonded debt, could greatly exceed the total ownership equity (tangible net worth). In the second place, even though the total debts of the company are small in relation to the owners' investment, in a liquidation the assets frequently bring far less than the values at which they are carried on the books of the corporation. Therefore, an insufficient amount might be realized by the sale of the assets to satisfy all of the creditors' claims—short-term or long-term—against the business. In such a case, of course, nothing would be available to repay any part of the owners' equity because it was consumed by the creditors' claims.

Stock Equity to Bonded Debt Ratios, Averaged, From a Random Sample of Twenty-five Companies With Only Mortgage Bonds and Twenty-five Companies With Only Debenture Bonds, for Selected Years: 1937, 1946, 1950, 1954.

	1937	1946	1950	1954
Companies With Only Mortgage Bonds				
Average Stock Equity To Bonded Debt Ratios	3.20	4.16	3.62	5.53
Companies With Only Debenture Bonds				
Average Stock Equity To Bonded Debt Ratios	6.79	3.72	5.17	5.63

Source: Computed from data contained in John Moody's, **Investment Manual-Industrials** (New York: Moody's Investors Service, 1936-1940, 1945-1955).

Thus, the average of these ratios, presented in Table 2, merely indicates the average number of times that the stockholders' investments in the twenty-five companies shown for each year for the two groups exceeded that of the bondholders in these companies. Of the companies that had issued only mortgage bonds, the stockholders had invested 5.53 times more than the bondholders in 1954 but only 3.20 times more in 1937. Conversely, the stockholders in the companies that had only debenture bonds outstanding had invested 6.79 times more than the bondholders in 1937 but only 3.72 times in 1946. Neither group of companies was very consistent in the coverage given to the bondholders, but in general, the companies with only debenture bonds outstanding consistently provided a somewhat higher degree of protection than the companies with only mortgage bonds outstanding.

CONCLUSIONS

From these ratios one important conclusion can be reached: Through a proportionately greater investment in the company than that provided by the bondholders, the stockholders of those industrial companies with debenture bonds gave a better degree of protection to their bondholders than the stockholders of the industrial companies with only mortgage bonds. Such a conclusion, however, does not explain the reasons why few mortgage bonds were used during the 1946-1954 period, and why an increasingly greater number of debenture bonds was employed by industrial concerns. This change in the use of bond types, however, raises this question: What caused the great decline in the number of mortgage bonds used in the later period? Such a question might be answered by stating that the 1946 to 1954 period was characterized as an economically prosperous period, and therefore more industrial companies had better credit ratings (which is generally considered a primary requisite to the issuance of unsecured bonds) and were thus able to utilize debenture bonds. Is this answer, however, necessarily a complete one? Why

would corporations turn to unsecured bonds when traditionally they had made greater use of mortgage bonds?

Obviously, the better credit standing of more industrial companies, brought about by the generally high level of prosperity enjoyed by the American economy during this period, made possible the greater use of debentures. Assuming this to be true, can it be construed as a sole and sufficient reason for the more wide-spread use of unsecured debt instruments? A possibility exists that the cost of issuing and servicing the unsecured bonds may be less than similar costs for secured bonds. Whether or not the actual cost might be greater for a debenture bond than for a mortgage bond is a moot question although some writers in the field of corporation finance generally assume, without empirical evidence, that effective rates are somewhat higher on the unsecured bonds. Without going into the details of the problem, certain evidence does exist, however, that advantages do exist for the use of unsecured bonds, and in all probability, for those companies with sufficiently high credit ratings, a certain amount of cost reduction may be possible. Obviously, a good credit rating is requisite to debenture financing; otherwise, the higher interest cost, which would undoubtedly result from a company's poor credit standing, would more than negate the lower costs involved with this type of debt financing.

United States Cotton—Asset or Liability?

HALE A. NEWCOMER
Assistant Professor of Marketing
School of Business and Public Administration
University of Missouri

American cotton producers presently are engaged in a battle for world cotton markets with producers from many other lands, as well as being in very strong competition with producers of synthetic fibers. A short time ago, the United States government began to sell cotton abroad at prices considerably lower than those in the domestic market in order to dispose of large surpluses held in storage by the Commodity Credit Corporation (CCC). When these sales began, there was an immediate wave of protests from governments of other cotton producing nations, who considered these sales to be a distinct threat to their economies. The question that now arises is how cotton producers got into such difficulties and what may be done by way of solution. In order to answer these basic questions it is necessary to trace some of the recent history in the cotton markets of the world.

RECENT HISTORY

From 1937 to 1940, world agricultural producers were struggling to disengage themselves from a disastrous world-wide depression, which, for agricultural products, had begun several years before the American stock market plummeted so spectacularly. However, by 1940, World War II scarcities had created a need for all types of agricultural products, including cotton. The vastly increased war demands more than offset the loss of regular peacetime markets, and were considerably increased in early 1942, when most of the cotton-producing areas in the Far East were separated from the "Allies'" cause.

Postwar Period

For several years after the end of the war, world demand greatly exceeded world production of cotton. Many areas were unfit for production of cotton for a considerable time, and textile industries in some countries had to be rebuilt. During this period a real peak of American exports in both raw cotton products and cotton goods was reached. As time progressed, exports from other cotton producing countries increased greatly, and were quickened by the high prices which had developed. Certainly, American producers were encouraged by

these market forces and produced great amounts of cotton.

By 1948, world supply had caught up with world demand. American producers were now caught between rapidly lowering retail prices for cotton goods and increasing costs of production. As a consequence, large surpluses appeared in the United States. The U. S. government price support program kept the domestic price high, and efforts were made to limit supply by acreage allotments and quotas. The production situation would very likely have become extremely serious in 1950 or 1951 had not the Korean conflict relieved the rising supply by increasing demand, which occurred because nations all over the world became worried that once again Far Eastern supplies were going to be cut off. As demand grew, the price increased sharply until the American government again intervened and set a price ceiling on cotton of 45 cents a pound. In other countries, prices increased beyond this amount.

By late 1951 and early 1952, scare buying by world cotton mills had largely ceased. Although demand decreased, supply was not so easily reduced, because of the stimulation of too high prices. With the continuation of large volume production, surpluses again accumulated. American cotton, as a more expensive commodity, once more accounted for a large share of these surpluses.

This situation continued through 1955. Many attempts were made to curtail American production, but price supports by the federal government encouraged more intensive cotton growing methods to offset acreage reductions and other controls. The Commodity Credit Corporation, as an agency of the federal government, was committed to supporting the domestic market price for cotton by entering the market and buying up the surpluses. By so doing, it accumulated a great amount of cotton which it was unable to sell overseas at the domestic price. Since the CCC did not drop the price in the United States for fear of underselling and further demoralizing the market, it simply stored the cotton in warehouses until times when the fiber might be needed. Unfortunately, it has not been needed and the surplus continued to grow until it reached a total of 14 million bales in early 1956.[1]

DECISION TO SELL ABROAD

In 1956, plagued with the tremendous amount of cotton in storage, the Agriculture Department decided that some system of disposal must be initiated. Since it would be impractical to sell it on the domestic market and maintain the price at the supported level Department officials believed that the cotton would have to be sold abroad. Again, the Agriculture Department turned to the Commodity Credit Corporation whose job it would be to somehow dispose of the 14 million bale surplus.

Obviously, this was a task which could not be completed at once. During the 1950's the United States exported an average of between 2 to 3 million bales of cotton each year. In 1954-55, the exports were about 2 billion bales, which was a very small percentage of the world market. By setting the foreign price of cotton held by the CCC at competitive levels, the agency hoped to sell much cotton and perhaps double exports. Accordingly, the price of middling 15/16's inch export cotton was set at 25.50 cents a pound.[2] Lower prices were to be accepted if necessary.

As time progressed, various expedients, ranging from barter deals to rather complex triangular deals, were adopted. For example, the CCC sold $21.7 million of commodities to Burma, of which $17.5 million were of raw cotton. Since Burma can

[1] **Cotton Situation,** U. S. Department of Agriculture, Agriculture Marketing Service, April 2, 1957, p. 3.

[2] "Plight of Cotton," **Economist,** London, June 23, 1956, pp. 1219-20.

use only about one million dollars worth of raw cotton, the rest was shipped in cotton textiles of like value. These textiles were made in third countries, since the United States doesn't usually sell to Burma and didn't want to step on the regular suppliers' toes. Great Britain was one such supplier to ship about 940,000 pounds sterling of textiles, and she received about that amount in raw cotton from the United States. Many of the goods, however, were not made from American cotton but utilized the long staple Egyptian cotton which is generally considered to be of a finer grade. Hence, the British were left with a large amount of American raw cotton to dispose of through some channel. Similar deals have been made with Pakistan and also with Indonesia.[3]

RESULTS OF SELLING ABROAD

The above types of transactions aroused a wave of indignation and protest from practically all foreign cotton producing countries. The market was considerably upset and remained quite unstable for a time. Hedging was made very difficult because of the great uncertainty of both spot and futures markets. Many buyers adopted a "wait and see" attitude, expecting the market price to decline still further. Other cotton producing countries took immediate steps to reduce their own prices as necessary.

When the price of U. S. cotton did not drop appreciably, confidence in the market resumed, and after the summer of 1956, spot prices of cotton were at a level somewhat above the 25.50 cent export price of the CCC. Since October, 1956, these prices have risen slightly. There are several reasons for the strengthening of cotton prices.

First, the supplies of cotton in many foreign countries were reduced in 1955-56. Practically all of the 1957 cotton production was moved except for that of the lowest grade.

Secondly, at the start of the 1958 season, most cotton importing countries had rather low inventories of both cotton and cotton products.

Thirdly, the continuation of acreage controls and even some further reduction under the Soil Bank further reduced supply. This factor is of considerable importance in the stabilization of price.

Fourthly, the whole Middle East situation, revolving around Egypt and the Arab block caused doubt in many minds about the future of business dealings in that area. It was believed that if military action broke out again, the whole area might be cut off from normal Western trade for a considerable time.[4]

SURPLUS REDUCED

The Department of Agriculture hoped that cotton exports would at least double or reach about 4 to 4½ million bales during 1957. This expectation was more than realized, with exports hitting a peak of almost 8 million bales in 1957, dropping the carry over of cotton holdings of the CCC from 14 million bales to 11.6 million bales in 1957 alone.[5] The primary reason for the tremendous increase in American cotton exports is, of course, the reduction in price by the CCC. There are also other reasons, some of which are related to the price reduction.

One of these is the reduced foreign free world production of cotton. This reduction amounted to 600,000 bales and shows an attempt by several foreign governments to curtail the supply factor. However, this undoubtedly happened because of the pressure of the low priced American cotton upon the market. The Mexicans alone, for example, reduced their production about 150,000 bales.

[3] "Triangular Deals in Cotton," **Economist**, London, June 23, 1956, p. 1220.

[4] "U. S. Cotton Programs Stabilize World Market," Barber, Charles H., **Foreign Agriculture**, June, 1957, p. 22.

[5] **Cotton Situation**, U. S. Department of Agriculture, June 4, 1957, p. 4.

Secondly, consumption of cotton in the foreign free world has increased slightly more than one million bales since the 1957-59 season. This, too, may be related to the lower price, since cotton is a little cheaper than before, and hence is likely to have increased use, at least temporarily. Some of the increased consumption may come from other causes, as for example, the tremendous growth of the world's population in many areas. More people need more clothing, and since much of the population growth has been in relatively warm climates and among low income groups, there is an increasing market for cheap cotton apparel and other similar goods.

Thirdly, foreign free world consumers of raw cotton are allowing their stocks to increase to a higher level. It has been estimated that almost two million bales will be marketed in 1960 for this reason. Again, the fact that the price is lower than usual may have given impetus to stock-piling. This is a result of the rebuilding of inventories after the recession of 1957-58.[6]

The cotton disposal program of the Commodity Credit Corporation was so successful that Congress has extended the life of the program each year, to date. Currently, even with an increase of production of some 3.2 million bales in 1959, cotton carryover is estimated to be about 8.5 million bales as of August, 1960, or some 400,000 bales less than for the same period of 1959. Stocks of surplus cotton held by the CCC totaled some 6 million bales, as of January 15, 1960, a very sharp decrease since 1956 when the surplus was 14 million bales. From the standpoint of the U. S. the program has been successful in reducing stocks of government held cotton surpluses.[7]

[6] "Trade Prospects for Cotton," **Foreign Agriculture**, pp. 3-22, May 1959.
[7] **Cotton Situation**, U. S. Department of Agriculture, January, 1960, pp. 1-2.

PRICE DISPARITY

In spite of this, there remains a great disparity between domestic prices and export prices caused by high parity payments. The parity level was set at the 1956 level or 75 per cent for long staple cotton. For the rest of the cotton crop, the parity level remained at 82½ per cent of parity which was considerably lower than the 90 per cent figure set under the 1956 Farm Bill vetoed by the President. Many observers believe, however, that 82½ per cent of parity is much too high, since a lower level of 75 per cent is allowable under the present law. They reason that since the American price is extremely high by world standards, it should not be supported at a level higher than is absolutely necessary. Since the spot price for 15/16's inch middling cotton was about 35.45 cents per pound in the spring of 1957, and the CCC was selling it abroad for about 25 cents a pound, the point seems to be well taken. It might be of considerable benefit if the domestic price were allowed to fall to around 30 cents a pound. This might reduce the intensity of the production response. High prices take on even greater significance in a period of recession, which, while it continues, can both lengthen and worsen the situation.

EFFECT ON WORLD TRADE

What has been and is likely to be the effect on world trade and international relations from these programs? So far, there seems to have been much talk but little action on the part of foreign countries. Most have had low stocks of cotton on hand and consequently have been content to wait and see what happened before they took action. There have been some notable exceptions. Mexico set up a system of barter which enabled her to trade cotton for automotive parts and similar products from other countries, especially the United States. Hence, the Mexicans enjoyed better success in their cotton sales overseas than

have many other cotton producing countries.

Both Mexico and Brazil have tended to lower prices to meet competition. This step, if it continues and spreads to other cotton producing nations, could cause a world-wide price war. In fact, this could have occurred by now had not an increased demand for cotton removed some of the surplus.

Most of the other cotton raising countries have taken measures, as has the United States, to limit the production of cotton. While this may be a generally corrective step, it must be remembered that many cotton producing nations are small, one commodity exporting countries, and any reduction in their export crop injuries them greatly.

Another problem arises in connection with U. S. cotton which is being sold cheaply. The regular sellers will allow their cotton to go to the CCC at the loan price (about 33 cents per pound), use the cotton, and then buy cotton from the CCC at a price lower than the loan.[8] Although the New York Cotton Exchange officials were greatly concerned lest the regular channels of distribution would be eliminated for most of the industry, it appears that, while many farmers take advantage of CCC loans, there is still enough cotton to be sold to prevent a destruction of regular channels.

SOLUTION DIFFICULT

What is the solution to the world dilemma of cotton surpluses? There seems to be no easy, quick solution. To be effective, any answer must be long range in scope and moderate in degree.

Present surpluses must be disposed of in a manner so at not to completely disrupt the market. The CCC should exercise extreme caution in its disposal program so as not to flood one area with surplus cotton, but should, instead, spread the foreign sales over a wide area.

Price wars must be avoided. Perhaps this may be done by some form of international cooperation. For example, the International Cotton Advisory Committee, formed in the latter 1930's and meeting annually, has been helpful in resolving some problems. This committee provides a place where representatives of all cotton producing countries can meet and discuss their problems. It can give the American representatives the opportunity to give their side of the problem, and although nothing is often accomplished except the airing of ideas and positions, this action in itself can be of great help in promoting international understanding about the problem.

One interesting solution as to what to do with American cotton surpluses has come about in relation to India and other Asian countries.

Since U. S. Public Law 480, regarding the administration of international aid, was passed several countries with growing populations and hence food-supply problems, have been able to buy some of our farm surpluses at competitive world prices with their own currencies. This conserves their supplies of foreign exchange for use on capital improvements which can later be utilized for improvements in farming methods and yields. At the same time, the U. S. has set aside about 80 per cent ($778 million to India alone) of these currencies for grants and loans to the countries involved. The program seems likely to continue for some time. Cotton, of course, while not a food, is included since it also releases foreign exchange from foreign purchases made by these countries and also enables them to receive the necessary raw materials for their textile mills. This, in turn, will provide needed export revenues with which to pay for industrial development.[9]

[8] "Lowered Pegs, Dumping Depress Cotton Prices," **Barrons**, May 7, 1956, pp. 39-40.

[9] "India: How U. S. Farm Surpluses are Stimulating Economic Growth," **Foreign Agriculture**, January 1960, by Quentin M. West; and "Big Share of U. S. Cotton Exports May Go To Asia And Australia," **Foreign Agriculture**, November 1959, by Guy A. W. Schilling.

Another method to reduce present cotton overproduction is to increase the demand for cotton apparel. This has been done domestically through the introduction of technical improvements in traditional garments such as wash-and-wear cotton goods, and is now being promoted to an even greater extent by foreign firms.

Although we have witnessed a cotton textile recession in the last few years, world cotton consumption from 1949 to 1959 rose almost 50 per cent and in countries outside the U. S. the rise amounted to 60 per cent. With the growth of world population and the demand for cheap garments, it would seem that this trend is likely to continue for the foreseeable future.[10]

POSSIBLE REMEDY

Although the CCC has done a remarkable job in reducing surpluses with a minimum of friction, both domestic and foreign, something still needs to be done to prevent very large future surpluses from accumulating. Strict governmental regulations have been devised to limit the supply of cotton, but they have not been adequate, since cotton farmers have devised numerous methods of increasing their production in spite of these measures. One remedy, suggested by a group of cotton farmers in the southeastern part of the U. S. is that the government remove parity prices and allow the prices to seek their own level in a free market. This group then suggests that the farmers will be given the incentive to reduce their costs to a level more in line with world prices. The suggestion is an old one, but one that seems to be gaining adherents

Whatever the final solution, certain basic considerations must be present. (1) The strength of American agriculture must not be dissipated; (2) mobility of economic resources should be assured; (3) foreign relations should be improved; (4) free world cooperation should be strengthened; and (5) the fiscal soundness of the federal government should be improved.

In an industrial economy which is becoming more dependent upon government subsidies it is, perhaps, too much to recommend even a partial return to private or personal responsibility in the market place. Yet, this is necesary if private enterprise in the United States is to survive.

[10] "Promoting Cotton Around the World," **Foreign Agriculture**, August 1959, pp. 4-5, by Read J. Dunn.

Research Projects

HIGHWAY FINANCE STUDY

The University of Missouri through its Bureau of Business and Economic Research in the School of Business and Public Administration has undertaken a study of the financial aspects of Missouri road and street systems for the State Highway Commission of Missouri.

The financial study is part of an overall study of road and street needs in the State requested by a joint committee of the Senate and House which was authorized by the 70th General Assembly of Missouri. The physical or engineering aspects of road development in the State are being studied by the Automotive Safety Foundation of Washington, D.C. under a contract with the State Highway Commission.

The two studies, physical and financial, will provide the facts for discussions and possible legislation aimed at providing road systems in the State which will meet Missouri's road needs in the years ahead. The major contribution of the financial study will be a collection and analysis of facts pertaining to the existing fiscal bases for highway, road and street operations in the State. The study will also include a preparation of sound fiscal estimates related to the road and street needs as expressed in the work being done by the Automotive Safety Foundation.

The financial study will reveal best estimates of future changes in the economic, demographic, and fiscal condition of the State and political sub-divisions insofar as these relate to road programming. Projections and forecasts of important quantities will be made to 1980 so that a long-range plan of road and street construction and maintenance may be devised which will fit the fiscal capacity of the State to meet such fiscal needs.

The University of Missouri study proposal was prepared by an interdepartmental committee composed of the following professors: Donald S. Holm, Jr., business management; Elmer R. Kiehl, agricultural economics; Frederick E. May, marketing; and Robert W. Paterson, business research.

The professional staff undertaking research assignments on the financial study represent numerous academic departments of the University. These are:

R. S. Bauder, Professor of Economics
N. W. Edwards, Associate Professor of Transportation
M. L. Faust, Professor of Political Science
N. P. Gist, Professor of Sociology
D. S. Holm, Jr., Professor of Business Management
P. E. Junk, Assistant Professor of Economics
E. R. Kiehl, Professor of Agricultural Economics
C. E. Lively, Professor of Rural Sociology
F. E. May, Assistant Professor of Marketing
R. L. McNamara, Professor of Rural Sociology
Frank Miller, Professor of Agricultural Economics
J. C. Murdock, Professor of Economics
Jacob Nussbaum, Research Assistant

Robert W. Paterson, Project Director
M. Peterson, Assistant Professor of Business Finance
C. T. Pihlblad, Professor of Sociology
V. J. Rhodes, Associate Professor of Agricultural Economics
F. L. Stubbs, Associate Professor of Business Finance
T. G. Tracy, Professor of Business Finance
P. C. Walker, Professor of Economics
S. G. Wennberg, Professor of Marketing

Plans call for a final report to be submitted to the State Highway Commission in December of this year.

INDUSTRIAL DEVELOPMENT BIBLIOGRAPHY

The Bureau is compiling an extensive bibliography on economic and industrial development. Unfortunately, much work that has been done on such activities for states and local areas does not find its way into library card catalogs. Thus, many publications about economic and industrial development activities in states and local areas can be found only by communicating with people who have wide knowledge of what has or is being done in their locale.

To assist in the compilation of the bibliography we would welcome your participation. If you know of any publications about economic and industrial development in the State of Missouri or subdivisions please communicate with the Bureau of Business and Economic Research, School of Business and Public Administration, University of Missouri, Columbia, Missouri.

Dedication of New Business and Public Administration Building

Missouri's Governor James T. Blair, Jr., presented the new building of the School of Business and Public Administration to the University of Missouri in formal dedication ceremonies on March 25.

James A. Finch, Jr., of Cape Girardeau, president of the Board of Curators, accepted the building for the University.

University President Elmer Ellis presided at the dedication ceremonies, and introduced the principal speaker of the occasion, Dr. Thomas H. Carroll II of New York, vice-president of the Ford Foundation and former dean of business administration at Syracuse University and the University of North Carolina, who spoke on "New Horizons in Education for Business."

William L. Bradshaw, dean of the School of Business and Public Administration, presided at an open house in the new building after the formal dedication ceremonies. A native Missourian and a graduate of the University, Professor Bradshaw has been dean of the School since 1946. He joined the faculty at M.U. in 1927 and has seen the enrollment of the School grow from about 200 to 1,112—the maximum enrollment caused by the post World War II period—in 1948-49. Much of his time over the last few years has been devoted to the planning of the new building.

Among other facilities, the new building houses the University's new Digital Computer Center, containing a Burroughs 205 electronic digital computer obtained through a substantial grant from the National Science Foundation for the purpose. The computer is for use of all divisions and departments of the University in their research programs.

For the first time in many years all activities of the School are housed under one roof. Research activities, administrative offices, professorial offices, and classrooms are all contained in the new $1,500,000 building.

Classrooms have been planned for groups of various sizes and for different uses. Large classrooms reflect the expectation of expanding enrollment and the possibility of teaching some courses by lecture or combination of lecture with small discussion sections. The low estimate for University enrollment by 1970 is 17,000. If the Business and Public Administration School grows at the same rate as the University as a whole, its enrollment by 1970 will be 1,300 or 1,400.